

TUBERCULOSIS OF THE BLADDER.

BY GEORGE WALKER, M.D.,

OF BALTIMORE,

Associate in Surgery in the Johns Hopkins Hospital.

(Concluded from page 408.)

PART III.

RESULTS.

IN 477 cases, results of treatment were given. In 44 of these the statements were so indefinite that they were rejected from the following list:

Deaths.....	161	Cured.....	29
Improved.....	130	Made worse.....	6
Not improved.....	77	(Indefinite).....	44

Deaths.—In the 161 deaths, there were 49 cases in which an operation of some kind had been performed; in 7 of these death was directly due to operative interference, in 42 it occurred at a remote period. The operations in the fatal cases were as follows: 28 suprapubic cystostomies, with curetting, cauterization with the Pacquelin cautery, excision of ulcer, etc.; 10 perineal sections; 5 nephrectomies; 3 prostatectomies; 2 nephrotomies; 1 vesico-vaginal incision. Of the 7 deaths which were due to operative interference (these are included in the above list) 3 followed a perineal section; 2 excision of the diseased area; 1 suprapubic cystostomy; in 1 the cause was not clearly stated. It is probable that there were more fatalities, but only those cases have been selected in which death occurred within the first few days after operation.

The cause of death in the great majority was not specifically stated; 4 patients died in coma; 2 from acute miliary tuberculosis; others from general tuberculosis, exhaustion, suppression of urine and other complications.

Improvement.—130 patients are said to have improved—

some only slightly, others markedly so, and a few were almost cured. Among the procedures employed were 48 suprapubic cystotomies; 23 iodoform injections; 18 sublimate instillations; 10 medical treatments; 5 curettings through the urethra in females; 5 perineal sections; 4 instillations of gemol; 3 vesico-vaginal incisions; 2 changes of climate; 2 excisions of the ulcer; 2 injections of tuberculin, 2 nephrectomies; 1 cauterization through the urethra in the male; 1 guaiacol injections, and 1 vesico-vaginal incision with suprapubic cystotomy.

The average age of the improved patients was 31.02 years.

No Improvement.—There were 77 cases in which in spite of treatment no benefit followed. Among the procedures employed were 34 suprapubic cystotomies; 15 instillations of sublimate; 10 curettings of the bladder through the urethra in females; 7 instillations of iodoform; 3 irrigations; 2 instillations of gemol; 2 perineal sections; 2 medical treatments; 1 excision of the ulcer: 1 suprapubic and perineal section combined. The average age of these patients was $27\frac{1}{3}$ years.

Cured.—There were 29 cases reported as cured. In these there were 9 suprapubic cystotomies with curetting, cauterization, iodoform drain, etc. (Bell, Guyon, Routier, Loumeau, Battle, and Carleton); 8 nephrectomies (Albarran, Koenig, Bougle, Kapsammer); 5 changes of climate (Bangs, Cunston, Camero, Desnos); 2 curettings of the bladder through the female urethra, (Polak, Motz); 2 sublimate instillations (Guyon); 1 iodoform injection (Jamin); 1 medical treatment (Richter); 1 nephrectomy with suprapubic cystotomy (Meyer).

Among the cured patients there were 13 males and 10 females; in 6 the sex was not given. The youngest was 11 and the oldest 49. The average age was 28.87 years.

In making up the foregoing list I have aimed to be as fair as possible, but I think I have leaned toward the inclusion of some cases which were doubtful.

A synopsis of a few of the excluded, doubtful, and specially interesting cases is as follows: Mullin's patient is referred to as cured, but at last accounts complained of consid-

erable frequency of urination during the day, which would argue that there must still have been some bladder irritation. It is presumable, therefore, that the disease was still mildly active.

Strauss' case is not one of undoubted tuberculosis, for at no time were tubercle bacilli found in the urine, and the ulcer in the bladder was single and situated on the anterior wall. (Not included.)

Griefenhagen reported a cure after perineal section, but in his last record he says that both cords were still thickened. Such being the case, doubt is thrown on the complete recovery of the bladder. (Not included.)

Clado recorded a cured bladder tuberculosis. The diagnosis was made, however, only on the appearance of the granulations in the bladder at the time of operation. This case is included but is not absolutely positive.

Polak's patient had tubercle bacilli in the urine and the cystoscopic examination showed a tuberculous mucous membrane. This, then, I take to be an undoubted instance of cured bladder tuberculosis.

The tuberculosis in Bangs' record is unquestionable. A perineal section and suprapubic cystotomy were both employed without improvement, after which the patient went to California and was apparently cured.

Cumston gives the clearest and most undoubted example of the list. A girl aged 11 had tubercle bacilli in the urine proved by the microscope and by inoculation into a guinea-pig; there were also typical tuberculous lesions in the bladder which were carefully observed through the cystoscope. She was treated with local applications of lactic acid once a week, and iodoform oil was injected every fourth day. This was kept up for four months, when she was sent to Bermuda and remained there for several months; on her return the bladder was again cystoscoped and the lesions were found to have healed; no tubercle bacilli could be discovered in the urine and inoculation of a guinea-pig proved negative.

Carleton's report, which is included in the above list under

the head of suprapubic cystotomies, is as follows: Male, 39, had had several attacks of hæmaturia; later, frequent and painful micturition developed, and tubercle bacilli were found in the urine. A suprapubic cystotomy was done, a large stone was found and definite tubercles were seen on the mucous membrane. After the operation the patient rapidly improved and the tubercle bacilli disappeared. While it is stated that the organisms were found in the urine, and that definite tubercles were present on the mucous membrane, the bacilli were not differentiated from smegma bacilli and the tissue was not proved to be tuberculous by microscopic examination. Then, too, the symptoms cleared up so rapidly that, taken altogether, there must remain some doubt about this case.

The report of McGrath was not included. In this instance there were no tubercle bacilli in the urine, nor was any tissue of the bladder removed and examined, the diagnosis being made simply on the appearance of the mucous membrane at the time of operation. The bladder was drained for six weeks, and at the end of ten months the urine was clear and the other symptoms had disappeared.

Cotterel's case has been referred to in the literature as an instance of cure. No tubercle bacilli were found in the urine, and there was no tuberculosis, as far as could be made out, in the other genito-urinary organs. The bladder showed a small ragged ulcer just above the right ureter, but otherwise there were no characteristic signs. The mucous membrane was curetted and touched with the Pacquelin cautery; the wound healed readily and the patient became entirely well. (Not included.)

Reynès case is reported as an example of recovery. The author states that the patient was very much improved, but does not say that he was well. (Not included.)

Battle had an undoubted instance which was cured after operation. The patient, a female aged 11, had had various forms of treatment without benefit. A suprapubic cystotomy was done and the bladder was curetted and cauterized with chloride of zinc. She made a slow, but apparently complete

recovery, for at last accounts her health was good; she had no bladder symptoms, and was able to hold her urine for three hours. The tuberculous nature of this case was proved by the examination.

McGowan reports 10 suprapubic cystotomies for tuberculosis of the bladder with 4 cures. The cases said to be cured were never definitely proved to be tuberculous. (Not included.)

Botsford cites an instance of a cure by hypodermic injections of nuclein. (Not included.)

Richter is said to have cured a bladder tuberculosis in a girl by the use of ichthyol administered internally. (Not included.)

Guyon had only 1 suprapubic cystotomy case that was practically well afterwards. (Included.)

Horwitz has seen 2 cases of bladder tuberculosis subside spontaneously. (Not included.)

Personally I have not observed in my practice, nor has there been in the general surgical wards of the Johns Hopkins Hospital a single instance of complete recovery from bladder tuberculosis.

Made Worse.—There were 9 cases recorded as being made worse: 3 from sublimate instillations; 2 from injections of tuberculin; 3 from perineal sections; 1 from injections of guaiacol; and 1 from injections of iodoform. After the instillation of sublimate, in one of the above, there was great increase in the frequency of urination and a rapid implication of the prostate. The average age of the patients who were made worse by treatment was thirty-four years.

Excision of the Diseased Area.—There were 13 instances in which the diseased mucous membrane was excised through a suprapubic opening; 2 of these patients died from the effects of operation; 8 died at a later period; 2 were improved; and 1 was unimproved.

The bladder was completely excised with transplantation of the ureters into the rectum, twice; both patients died some time after.

I wish to thank Dr. Halsted for allowing me to use the

surgical histories and Dr. William McCallum for the privilege of examining the preserved tissues and the autopsy records.

LITERATURE.

- Albarran. Les infections secondaires dans la tuberculose vésicale. *Ann. d. mal. d. org. génito-urin.*, 1897.
- Albarran et Cottet. Tuberculose rénale ascendante. Double uretère pour le rein gauche. *Bull. de la Soc. Anat. de Paris*, 1898, p. 401.
- André. Diagnostic et traitement de la cystite tuberculeuse. *Rev. méd. de l'est, Nancy*, 1902, xxxiv, p. 453.
- Armandon (L.). Essai clinique sur la cystite tuberculeuse chez l'enfant. (*Abstr.*) *Méd. enf.*, Paris, 1897, 189-192.
- Armstrong (G. E.). Single Ulcer of the Urinary Bladder, Non-Tuberculous and Non-malignant, with Report of Cases. *Tr. Am. Surg. Ass.*, Phila., 1903, xxi, 106-116.
- Asch. Ueber die frühzeitige Diagnose der Blasentuberculose. *Berl. klin. Wochenschr.*, 1901, xxxviii, 1160.
- Bacaloglu et Gleize. Cystite tuberculeuse; gros calcul phosphatique expulsé; fistule vésico-rectale. *Soc. Anat.*, 1899, Oct., *Ann. d. mal. org. génito-urin.*, 1900, p. 1296.
- Ball (F. P.). Tuberculosis of the Bladder. *Penn. M. J.*, Pittsburg, 1900-1901, iv, 411-414.
- Bandler (V.). Ueber Blasentuberculose. *Prag. med. Wochenschr.*, 1903, xxviii, 257-259.
- Idem. Ueber Cystitis Tuberculose. *Verhandl. d. Gesellsch. deutsch. Naturf. u. Aertzte*, 1902, Leipz., 1903, ii, 2 Heft, 499.
- Bangs (L. B.). Case of Suprapubic Cystotomy. *N. York M. J.* 1889, xlix, 678-682.
- Idem. Case of Obscure Disease of the Bladder treated by Suprapubic Cystotomy and Prolonged Drainage. *J. Cutan. and Genito-Urinary Dis.*, N. Y., 1890, viii, 243, 250. (Discussion) 258-262. Also reprint.
- Idem. The Relative Value of Operating and Hygienic Measures in the Treatment of Tuberculosis and Neoplasms of the Bladder. *ANNALS OF SURGERY*, Phila., 1895, xxii, 205; 216. Also reprint.
- Banzet. Traitement des cystites tuberculeuses. *Ann. d. mal. d. org. génito-urin.*, 1897.
- Barlow (R.). Cystoskopische Befunde bei Blasentuberculose. *Centralbl. f. d. Krankh. d. Harn- u. Sex.-Org.*, Leipz., 1901, xii, 229-236.
- Battle (W. H.). A Case of Tubercular Ulceration of the Bladder in which recovery followed Scraping of the Disease through a Suprapubic Incision after Failure of Other Methods of Treatment. *Tr. Clin. Soc. Lond.*, 1890, xxiii, 201-206. Also (*abstr.*) *Brit. M. J.*, Lond., 1890, i, 1011.
- Bazy. Remarques sur la physiologie de la vessie avec application à la thérapeutique, du pansement permanent de la vessie. *Ann. d. mal. d. org. génito-urin.*, 1899, p. 625.
- Bell (J.). The Treatment of Tuberculosis of the Bladder through a

- Suprapubic Section. *J. Cutan. and Genito-urin. Dis.*, N. Y., 1892, x, 293-301.
- Bissell (J. B.). *The Diagnosis and Treatment of Tubercular Cystitis.* Boston M. and S. J., 1902, cxlvii, 326-328.
- Blanc (E.). Cystite tuberculeuse douloureuse, taille hypogastrique; drainage de Desnos, resultat, fonctionnel parfait. *Gaz. méd. de Par.*, 1888, 7, s. v, 351-353.
- Blanck. Ueber einen seltenen Fall von Tuberculose der Harnblase. *Monatsb. d. Krankh. d. Harn- u. Sex.-Appar. Berl.*, 1899, iv, 193-200, i, S. 1.
- Bontor. Cystite tuberculeuse primitive chez l'enfant. *West London Med. Chir. Soc.*, 5 mai, 1893.
- Bosset. Tuberculose de la vessie, traitement chirurgical par la taille hypogastrique. *Limousin méd.*, Limoges, 1894, xviii, 153-158.
- Botsford. Tuberculosis of Bladder cured with Nuclein Solution. *Med. Age*, 1897, No. 21.
- Brown. Smegma Bacillus. *J. Cutan. and Genito-urin. Dis.*, 1899, p. 336.
- Brown (Thomas R.). *The Bacteriology of Cystitis, Pyelitis and Pyelonephritis in Women, with a Consideration of the Accessory Etiological Factors in these Conditions, and of the various Chemical and Microscopical Questions Involved.* Reprint from *The Johns Hopkins Hospital Reports*, vol. x, 1-2.
- Brown (T. Warren). *Treatment of Tuberculosis by Tuberculin Inoculation.* *British Med. Jour.*, May 20, 1905, p. 1089.
- Bryson (J. P.). Tuberculosis of the Bladder. *Internat. Clin.*, Phila., 1891, iii, 162-174.
- Bunge u. Trautenroth. Smegma und Tuberkelbacillen. *Fortschr. d. Medizin*, 1896, i, Dezember.
- Burgess (A. H.). A Case of Simple Solitary Ulcer of the Bladder. *Lancet*, Lond., 1903, ii, 757.
- Burrage (W. L.). A Case of Primary Tuberculosis of the Female Bladder Diagnosed and Treated by Howard Kelly's New Method of Direct Inspection with Large Endoscope. *Boston M. and S. J.*, 1894, cxxi, 76-79. Also reprint.
- Camero. Traitement de la cystite tuberculeuse par le curettage vésical chez la femme. *Gaz. hebdom. d. méd. et chir.*, 1900, 20 Sept.
- Carbonell y Solé (F.). Estudio de la cistitis tuberculosa, concepto clinico y tratamiento de la misma. 8°. Barcelona, 1900.
- Idem. Estudio de la cistitis tuberculosa, concepto clinico y tratamiento de la misma. *Arch. de ginecop.*, Barcel., 1900, xiii, 17-27; 33; 49; 65; 85; 105; 129; 171; 191; 232; 252.
- Carleton (G. B.). Tubercular Cystitis. *Hahnemann Month.*, Phila., 1901, xxxvi, 133-140.
- Casper (L.). Zür Pathologie und Therapie der Blasen-tuberkulose. (Discussion). *Deutsche med. Wochenschr.*, Leipz. u. Berl., 1900, xxvi, ver. Beil. 129-132.
- Idem. Die Tuberculose der Harnblase und ihre Behandlung. *Deutsche Klinik*, Berl. u. Wein, 1901-2, x, I. Abth., 99-124.

- Castaigne (J.). Ulcère simple de la vessie, hématuries très abondantes et perforation vésicale. *Bull. et mem. Soc. Anat. de Par.*, 1899, lxxi, v, 230-239.
- Cathelin. Tuberculose latente des voies urinaires chez l'enfant avec distension enorme des uretères. *Soc. Anatom.*, 1898, Oct., *Ann. des mal. d. org. génito-urin.*, 1899.
- Catron (M.). Contribution à l'étude du traitement de la cystite tuberculeuse. 4^e, Paris, 1893.
- Cheyne (H. W.). Four Cases of Tuberculosis of the Bladder Treated by Suprapubic Cystotomy; Remarks. *Lancet*, Lond., 1895, i, 1577-1581.
- Christopherson (J. B.). Single Non-tuberculous Ulcer of the Bladder; Suprapubic Cystotomy. *Cure. Brit. M. J.*, Lond., 1902, i, 771.
- Clado (S.). Note pour servir à l'étude des lésions anatomopathologiques de la tuberculose vésicale. *Ann. d. mal. d. org. génito-urin.*, Par., 1887, v, 46-48.
- Idem. Quelques considérations sur le traitement chirurgical de la tuberculose vésicale. *Ass. Franç. d'Urologie*, 1898.
- Coll (J.). Estudio de la cistitis tuberculosa concepto clínico y tratamiento de la misma. Memoria laureada par la Real Academia de Medicina y Cirugia de Barcelona. 8^o, Barcelona, 1900.
- Colos (J. H. A.). Contribution à l'étude de la tuberculose vésicale et de son traitement chirurgical. 8^o, Paris, 1898, No. 325.
- Coplin (W. M. L.). Tuberculosis of the Bladder; Etiology and Pathology. *J. Cutan. and Genito-Urin. Dis.*, N. Y., 1898, xvi, 557-570, 2 pl.
- Cotterel. Note on a Case of Tuberculous Disease of the Bladder treated by Suprapubic Cystotomy and Curetting. *Lancet*, 1897, 9 Oct.
- Cumston (C. G.). Notes on the Symptoms and Diagnosis of Tuberculosis of the Bladder. *Medicine*, Detroit, 1895.
- Idem. Tubercular Cystitis in Children. *Boston M. and S. J.*, 1898, cxxxix, 619-622.
- De Camargo (A. C.). *Rev. Méd. de la Suisse Rom.* Genève, 1892, xii, 697-710.
- Delagenière. Extirpation de la muqueuse vésicale pour tuberculose de la vessie. *Bull. et mem. Soc. de Chir. de Par.*, 1895, xxi, 251-255.
- Dellagrammatica. Traitement opératoire de la cystite tuberculeuse. *Revue de Méd. Pharm.*, Constantinople, 1900, p. 25.
- Desbonnets (V.). Cystite tuberculeuse avec uréterite et néphrite ascendante du côté droit; tuberculose aigüe, mort. *J. d. sc. méd. de Lille*, 1894, ii, 271-275.
- Desnos. Intervention chirurgicale dans la tuberculose vésicale. *Cong. d. l'étude de la tuberculose*. Par., 1898, iv, 864-866.
- D'Haenens (A.). De la marche de la tuberculose vésicale. *Progrès méd. belge*, Brux., 1905, vii, 49-51.
- Domage. De la cystotomy précoce comme traitement curatif du tuberculose vésicale. Lyon, 1900.
- Duplay. De la tuberculose vésicale. *Semaine Med.*, Par., 1892, xii, 201. Also *Méd. mod.*, Par., 1892, iii, 188-191.

- Edwards (F.S.). A Case of Tuberculosis of the Bladder. West Lond. M. J., 1903, viii, 309.
- Englisch (J.). Ueber tuberculöse Infiltration des Zellgewebes in der Umgebung der Vorsteherdrüse und Blase. Wien. med. Bl., 1895, xviii, 123.
- Idem. Perivesiculitis tuberculosa. Wien. Klinik, 1896, xxii, 26-28.
- Fenwick (H.E.). Extensive Ulceration and Perforation of the Bladder after Fracture of the Spine. Tr. Path. Soc. Lond., 1885-6, xxxvii, 308.
- Idem. Tubercular Ulceration of the Bladder. Ibid., 309.
- Idem. A Case of Tubercular Ulceration of the Bladder, which was Treated by Means of a Weak Solution of Tuberculin. Ibid., 1890, 91, xlii, 189-194.
- Idem. A Lecture on the Clinical Significance of the Simple Solitary Ulcer of the Urinary Bladder. Brit. M. J., Lond., 1896, i, 1133-1135.
- Idem. Miliary Tubercle of Bladder. Tr. Path. Soc. Lond., 1886, xxxvii, 309.
- Idem. A Case of Tubercular Exfoliating Cystitis. Ibid., 310.
- Ferguson (J. E. A.). Brit. Guiana M. Ann., Demerara, 1891, 125.
- Ferrer (Piero). Resistencia de la vejiga urinaria a la tuberculosis experimental. Gac. Med. Catal., Barcel., 1900, xxiii, 362.
- Florence. Cystitis chronique probablement tuberculeuse; curettage et cauterisation du Trigone; guérison. Arch. Méd. de Toulouse, 1902, viii, 350-352.
- Fraser (H. E.). Tuberculosis of the Bladder. Brooklyn M. J., 1901, xx, 462-465.
- Freyer (P. J.). A Clinical Lecture on Tuberculosis of the Bladder. Edinb. M. J., 1902, n.s., xi, 38-44.
- Idem. Primary Tuberculosis of the Bladder. Clin. J., Lond., 1901, xviii, 180-183.
- Goldberg. Beitrag zur Behandlung der Urogenitaltuberkulose. Berl. klin. Wochenschrift, 1899, Nr. 5.
- Gordon (T. E.). On Tuberculosis of the Bladder. Dublin J. M. Sc., 1899, cvii, 344-350.
- Grieffenhagen (W.). Zur chirurgischen Behandlung der Blasen-tuberculose. Deutsche Ztschr. f. Chir., Leipz., 1896, xliii, 281-287.
- Greiwier (I.). Contribution à l'étude du traitement de la cystite tuberculeuse. 4°, Paris, 1890.
- Guyon (F.). Note sur le traitement chirurgical de la tuberculose de la vessie. Cong. franç. de Chir., Proc. verb., etc., Par., 1888, iii, 363-372.
- Idem. Résultats éloignés de quatre opérations pratiquées pour tuberculose vésicale. Ibid., 1889, Par., 1890, iv, 71-77. Also Ann. d. mal. d. org. genito-urin., Par., 1889, vii, 641-648.
- Idem. Cystite douloureuse chronique: traitement chirurgical. Rev. prat. d. méd., Paris, 1897, liv. 1.
- Haeffner (K.). Ueber Blasen-tuberkulose. 8°, Freiburg, 1899.
- Hallé (N.) et Motz (B.). Tuberculose de la vessie. Ann. de mal. d. org. génito-urin., Par., 1904, xxii.
- Hamilton (J.). Tuberculosis of the Bladder. Internat. Clin., Phila., 1896, 6 s., iii, 209-211.

- Heiter (A. A. L.). Ueber den Schwund der Harnblase durch Tuberkulöse. *Gesch.* 8°, Greifswald, 1903.
- Hinder (H. C.). Ulcer of the Urinary Bladder. *Intercolon. M. Cong., Australas. Tr.*, 1902, Hobart, 1903, 223-226.
- Horwitz (O.). Symptoms and Treatment of Tuberculosis of the Bladder. *J. Cutan and Genito-Urin. Dis., N. Y.*, 1898, xvi, 570-576.
- Hunner (G. L.). Surgery of Urinary Tuberculosis in Women. *American Medicine*, vol. vii, No. 18, pp. 701-707, April 30, 1904.
- Imbert (L.). Ulcères de la vessie. *Montpel. méd.*, 1903, xvii, 471-474.
- Jaenne. Tuberculose de la vessie et du rein. *Soc. anat.*, 1897, Juni. *Ann. de mal. d. org. génito-urin.*, 1898, p. 628.
- Jamin. Un cas de tuberculose vésicale guéri depuis cinq ans par les injections d'huile de vaseline iodoformée. *Ann. de mal. d. org. génito-urin.*, 1899, p. 740.
- Johnsen (A. B.). Some Remarks on Tuberculosis of the Urinary Bladder. *Med. News, N. Y.*, 1904, lxxxiv, 924-926.
- Johnson (G. H.). A Case of Ulcerative Disease of the Bladder. *Physician and Surg., Detroit and Ann Arbor*, 1899, xxi, 119-121.
- Jones (O. M.). Extensive Ulceration of the Bladder Treated by Prolonged Drainage. *Tr. M. Soc., Washington, Spokane*, 1901, 63-74.
- Kidd (P.). Extreme Tuberculous Ulceration of the Bladder; Tuberculosis of the Urethra. *Tr. Path. Soc., Lond.*, 1887-8, xxxix, 185.
- King. A Case of Genito-urinary Tuberculosis; Necropsy. *Med. News*, 1897, 4 Sept.
- Kreissl (F.). The Rational Treatment of Vesical Ulcer. *Chicago M. Recorder*, 1900, xix, 385-389. (Discussion) 477-450.
- Kronig. Zur Diagnose der Tuberkulose der weiblichen Blase. *Centralbl. f. Gynäk., Leipz.*, 1902, xxvi, 496-498.
- Kummel. Ein Fall von Blasentuberkulose. *Deutsche med. Wochenschr.*, 1895, Vereins-Beilage. Nr. 17.
- Le Fur (R.). Des cystites rebelles, dues à l'ulcère simple de la vessie. *As. franc. d'urolog., Proc. verb.*, 1903, Par., 1904, vii, 382-393.
- Idem. Des ulcérations vésicales et de l'ulcère simple de la vessie. *Cong. internat. de méd., Par.*, 1900, Sect. de Chir. urin., 173-181.
- Idem. Des ulcérations vésicales et en particulier de l'ulcère simple de la vessie. *Rev. méd. du Canada, Montreal*, 1901-2, v, 569-571; 585; 601.
- Lobos (P. N.). La Tuberculose Vésicale. *Rev. méd. de Chile, Socet. de Chile*, 1886-7, xv, 297-311.
- Locquin. Note sur l'emploi des injections d'iodoforme dans la cystite tuberculeuse. *Gaz. d. hôp., Par.*, 1887, lx, 52.
- Lohnstein. Einige neuere Arbeiten über Tuberkulose des Harn- und Sexualapparates. *Allg. med. Centralzeitung*, 1900. Nr. 40.
- Louveau. Tuberculose vésicale et cystostomie suspubienne. *J. de méd. de Bordeaux*, 1900, xxx, 344-346.
- Luyts. Cystite tuberculeuse traitée par les instillations de sublimé. *Ann. d. mal. d. org. génito-urin., Par.*, 1893, xi, 196-200.

- Malherbe (A.). Tuberculose vésicale prise pour une tumeur de la vessie; taille hypogastrique et cautérisation d'une partie des granulations tuberculeuses; amélioration. *Ann. d. mal. d. org. génito-urin.*, Par., 1892, x, 206-215.
- Marchand (F.) and Schücking (A.). Ueber die Tuberculose der weiblichen Harnblase. *Arch. f. Gynaek.*, Berl., 1877, xii, 433-477. Also reprint.
- Matile. De la tuberculose de la vessie et spécialement de son traitement chirurgical. 8°, Genève, 1890.
- McCabe (C. P.). A Case of Tubercular Bladder, Sacculated. *Albany M. Ann.*, 1898, xix, 553.
- McGrath (J. J.). Report of a Case of Tuberculosis of the Bladder, With Some Observations. 8°, New York, 1899. Repr. from *N. Y. M. J.*, 1899.
- McGuire (H.). Tuberculosis of the Bladder. *Tr. South. Surg. and Gynec. Ass.*, 1893. Phila., 1894, v, 174-176. Also *Virginia M. Month.*, Richmond, 1893-4, xx, 1073-1078.
- Mercier. Memoire sur certaines ulcérations spontanées de la vessie. *Gaz. méd. de Paris*, 1836, pp. 257 et 273.
- Meyer. Zur Behandlung der Blasen-tuberkulose. *New Yorker Med. Monatsschrift*, Bd. vi, p. 368.
- Morelle (A.). Un cas de tuberculose vésicale latente décelé par une injection d'ancienne tuberculine de Koch. *Ann. d. l'inst. Chir. de Brux.*, 1901, viii, 68-72.
- Morton (C. A.). The Surgical Treatment of Tuberculous Disease of the Bladder. *Clin. J.*, Lond., 1896-7, viii, 157-160.
- Motz. Guérison complète de trois cas de tuberculose vésicale grave. *Ann. de mal. d. org. génito-urin.*, 1898.
- Moullin (C. M.). Tuberculous Ulceration of the Bladder Treated by Suprapubic Cystotomy and Cauterization. *Lancet*, London, 1895, i, 1308.
- Idem. The Treatment of Tuberculous Disease of the Bladder. *Tr. M. Soc. Lond.*, 1898, xxi, 286, 294.
- Murphy (J. B.). Nephrectomy for Tubercular and Surgical Kidneys. *Tr. Chicago Path. Soc.* (1894-5), 1896, i, 151-156.
- Nogues. Urines purulentes et tuberculose. *Ann. d. mal. d. org. génito-urin.*, 1899.
- Pascal (A.). Tuberculose de la vessie. *Concours méd.*, Par., 1896, xviii, 7-11.
- Paton (S.). Vesical Tuberculosis of the Female, with some Remarks on the Treatment. *N. York J. Gynaec. and Obst.*, 1893, iii, 202-208.
- Perkins (C. E.). Suprapubic Cystotomy in a Case of Tubercular Cystitis. *Tr. Ohio M. Soc.*, Cincin., 1893, 201-204.
- Petit. Tuberculose vésicale; traitement général et local par l'iodoforme; amélioration. *Ann. de la polyclin. de Bordeaux*, 1891-3, ii, 89-93.
- Pierchon (A. E.). Les grandes hématuries dans la tuberculose de la vessie. 4°, Lille, 1895.

- Philip (R. W.). A Case of Tubercular Ulceration of the Bladder with Unusual Clinical History. *Am. J. M. Sc.*, Phila., 1889, xcvi, 43-46.
- Polak (J. O.). A Case of Bladder Tuberculosis Successfully Treated by Kelly's Method of Direct Medication. *Am. Gynaec. and Obst. J.*, N. Y., 1897, x, 41-44.
- Pousson (A.). Traitement de la tuberculose de la vessie. *Gaz. hebdomadaire de médecine de Bordeaux*, 1899, xx, 101-104, iii.
- Railliard. Des interventions chirurgicales dans la tuberculose vésicale. 8°, Bordeaux, 1900.
- Ramond. Nouveau traitement des cystites tuberculeuses par des injections intravésicales d'air stérilisé. *Ann. d. mal. d. org. génito-urin.*, 1897.
- Rénard-Detley. De la cystite tuberculeuse. *Scalpel*, Liège, 1899-1900, lii, 44.
- Reverdin (J. L.). Note sur un cas de cystite tuberculeuse traitée par la taille hypogastrique, le vaclage et la cautérisation. *Ann. d. mal. d. org. génito-urin.*, Par., 1889, vii, 263; 330.
- Reynès. Tuberculose vésicale; cystite phosphatique secondaire; encroisement vésical; taille hypogastrique; curettage complet de la vessie; guérison opératoire; grande amélioration thérapeutique. *Ass. Franç. d'Urologie*, 1898.
- Reynolds (F.). Tuberculosis of the Bladder; its Appearance and Treatment through the Kelly Cystoscope; with a Report of Cases. 12°, New York, 1896. Repr. from *Am. Med. and Surg. Bull.*, N. Y., 1896.
- Richter. Ichthyol innerlich bei tuberkulose der Harnorgane. *Deutsche Med. Zeitung*, 1900, Nr. 22.
- Routier (A.). Traitement de la cystite tuberculeuse. *Ass. Franç. de Chir.*, Proc. verb., Par., 1896, x, 533-536.
- Rovsing. *Archiv f. klin. Chirurgie*, Bd. lxxvii, Heft 1.
- Saxtorph (S.). Valeur de l'intervention chirurgicale dans la tuberculose vésicale. *Rapport d. Congrès d'urologie de 1900*, p. 97.
- Idem. Valeur de l'intervention Chirurgicale dans les tuberculoses urinaires. *Congrès International de Médecine*, 1900. Section de Chirurgie urinaire, Paris.
- Idem. Valeur des interventions chirurgicales dans la tuberculose vésicale. *Courrier de méd.*, Par., 1901, 41, 240.
- Scherb (H.). Beitrag zur Pathologie und Therapie der Cystitis tuberculosa. 8°, Basel, 1903.
- Stein (A. W.). Tuberculosis of the Bladder. *Med. Rec.*, N. Y., 1890, xxxvii, 488-491.
- Steindler. Die Therapie der Blasen-tuberkulose. *Wien. med. Blätter*, 1899, Nr. 9.
- Stewart (J.). Tuberculous cystitis. *Maritime M. News*, Halifax, 1904, xvi, 211-215.
- Strauss (A.). Ein Fal von tuberculösen Geschwür der Blase. *Vers. a. d. Gesellsch. deutsch. Naturf. u. Aertze*, 1898, Leipz., 1899, lxx, 11, 2 Heft, 319.
- Schmidt (L. E.). Ulcer of the Bladder. *J. Am. M. Ass.*, Chicago, 1902, xxxix, 124-128.

- Schröder. Ueber die Behandlung der Blasen-tuberkulose mit T. R. Zeitschr. f. Geburtsh. und Gyn., 1899, H. 1.
- Sondern. Genito-urinary Tuberculosis; its Diagnosis in the Laboratory. J. Cutan. and Genito-urin. Dis., 1900, July.
- Strauss (A.). Ein Fall von tuberculösen Geschwür der Blase. Wien med. Wochenschr., 1898, xlviii, 2404-2406.
- Talayrach (G. B. A.). De la cystite tuberculeuse et de son traitement par l'iodoforme. 4°, Bordeaux, 1891.
- Tédenat and Fuster (L.). Cystite tuberculeuse. N. Montpel. méd., 1895, iv, 445; 474; 485. 1896, v, 361.
- Tédenat (E.). Cystite tuberculeuse. Leçons de clin. Chir. (etc.). 8°, Montpel. and Par., 1900, 179-211.
- Thurston (S. D.). The Chronic Perforating Ulcer of the Bladder. North Car. M. J., Wilmington, 1888, xxi, 97-103.
- Von Groenow. Ueber die tuberkulose der Harnblase. 8°, Freiburg i. B., 1892.
- Verhoogen. Des injections de sublimat dans les cystitis tuberculeuses. La Policlinique, Brux., 1897, 1 Janv.
- Vigneron (E.). Resultats de l'intervention chirurgical dans la tuberculose vésicale. Assoc. Franç. de chir., Proc. verb., Par., 1893, vii, 753-762.
- Von Hofmann (K.). Die Tuberkulose der Blase; Sammelbericht über die 1895-1900 erschien. Arbeiten. Centralbl. f. d. Grenzgeb. d. Med. u. Chir., Jena, 1901, iv, 705-716.
- Von Hoorn. Ueber das neue Tuberkulin T. R. bei der Behandlung des Lupus und der Blasen-tuberkulose. Deutsche med. Wochenschr., 1897, Nr. 39.
- Watson. On Some of the Clinical Features of Primary Tuberculosis of the Genito-urinary Organs. Boston Med. and Surg. Journ., 1895, 31 Jan.
- Weber. Beitrag zu Tuberkulose des Urogenitalapparates. Berl. klin. Wochenschr., 1900, Nr. 2.
- Williamson. The Examination of the Urine for Tubercle Bacilli and its Diagnostic Value. Med. Chron., 1898, Jan.
- Witzack (H.). Milchsäure gegen Blasen-tuberkulose. Internat. Centralbl. f. d. Physiol. u. Path. d. Harn- u. Sex.-Org., Leipz., 1893, iv, 321; 416. 1894, v, 113.
- Wright (A. E.). On the General Principles of the Theurapeutic Inoculation of Bacterial Vaccines as Applied to the Treatment of Tuberculous Infection. The Lancet, London, December 2, 1905.
- Wunschheim. Hochgradige Tuberkulose der Harnblase. Sitzung des Vereins deutscher Aerzte in Prag, 1896, Jan. Wien. med. Wochenschr., 1896, Nr. 14.
- Wyeth. Perforating Ulcer of the Bladder. N. Y. M. J., 1892, lv, 582.
- Young (Hugh H.). Suprapubic Retrocystic Extraperitoneal Resection of the Seminal Vesicles, Vasa Deferentia, and Half of the Bladder. ANNALS OF SURGERY, vol. xxxii, No. 4, Oct. 1900, p. 557.